

REMARKS

Claims 1, 2, 4-9, 11-14 and 21-24 are pending.

I. 35 USC 112, first paragraph

Claims 25-26 are rejected under 35 USC 112, first paragraph as failing to comply with the enablement requirement. They have been cancelled without prejudice or disclaimer to moot the rejection.

II. 35 USC § 103(a)

Claims 1, 2, 4-9, and 11-14 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over CA 910844. The Office Action asserts the reference teaches or suggests each feature of the claims.

The Office action states CA 910,844 does not disclose its angle but routine experiments would arrive at the presently claimed angle range of 75-105 degrees. In particular, the Office action asserts, even though CA 910,844 does not specifically disclose the angle of the V-groove, it does disclose the copper depositing in the form of dendrites that develop in directions normal to the dimensions of the groove. Further, the Office action asserts, CA 910,844 discloses the plane “at which these dendrites meet in their growth” is a plane of weakness allowing the deposited copper to be separated “easily due to the plane of weakness in the bottom edge of the cathode plate”. The Office action concludes a person of ordinary skill in the art would have the ability “to perform routine experimentation in order to optimise this plane of weakness”.

Also, the Office Action indicates Applicants cannot take the angle shown in the drawing (about 50 degrees) as literal.

Also, the Office Action further - and contradictingly - at page 3 goes on to say, “the figure no. 3 of the CA patent shows the v-groove used in the bottom of the plate and it appears to be in the range as set forth in applicant’s instant claims.”

A. Applicants Reply

Co-inventor Reville Wayne Armstrong stated in paragraph 6 of his Rule 132 Declaration of 30 March 2007 figure 3 of CA ‘844 shows an angle on the order of 50° and thus is outside the

presently claimed angles. Thus, the measured angle of figure 3 of CA '844 is outside the presently claimed range for angle.

Page 9 of the present application explains the angle of the present invention is selected to preferably allow deposition of copper in the V-groove adjacent the apex with the line of weakness extending between the arc of the V-groove; the specification teaches examples of suitable angles. Page 9 further explains the Applicants found certain groove sizes and shapes permit symmetrical splitting of the deposited metal, whereas others do not.

Applicants provide a groove having an arc of 90 degrees plus-or-minus 15 degrees as suitable for the inventive purpose, *i.e.* the symmetrical splitting of the deposited metal. The bottom of p.8 explains the copper crystals are deposited at right angles. Thus, selecting a proper V-groove angle causes the crystals to form without filling adjacent the apex of the V-groove with copper. Where the Office action chooses to assert CA '844 does show a V-groove of 50 degrees, such an angle would be far less susceptible to the electrodeposition of copper, thereby compromising the formation of the frangible portion and the sought symmetrical splitting of the copper cathode.

The Office Action states the angles of the V-groove of CA '844 must be within the range set forth by the present invention for the copper sheets to have a line of weakness within the V-groove. This allegedly necessarily results because CA '844 discloses a plane of weakness in the bottom edge of the plate and, even though it does not disclose any angle to achieve this, one skilled in the art would figure out this angle with routine experimentation.

It is respectfully submitted the Office action assumption that one skilled in the art will inherently arrive at the presently claimed range based on routine experimentation is hindsight.

CA '844 does not indicate whether to run its device until the entire V-groove is filled or only to have a very thin layer. Thus, absent a disclosure of angle and how long to run there is insufficient disclosure to perform the CA '844 invention and it is not an enabling reference.

There is disclosure at page 7 of copper in the form of dendrites developing in directions normal to the sides of the V-groove. However, Applicants respectfully submit this could equally require the plane of weakness to be formed entirely outside of the V-groove. Moreover, such an arrangement wherein the plane of weakness is formed entirely outside of the V-groove would satisfy the previously mentioned description of copper being deposited at the edge. Also, it is possible that the inventors of CA '844 arrived at an angle, e.g., a narrow V-groove arrangement of 50°, other than

that presently claimed and did not reach the improved results of the present invention.

Furthermore, this narrow V-groove arrangement is consistent with the experimental and testing data obtained by the Applicants when developing the present invention. With the narrow V-groove of Figure 3 of CA '844, there is insufficient copper deposited within the V-groove. The preferential failure point is at the thinnest deposit, *i.e.* the two outside edges of the V-groove. This is shown in Figure 3 of the present application and is consistent with the experimental and testing data obtained by the Applicants and listed in the previously-filed Rule 132 Inventor's Declaration.

With regard to the "plane of weakness", Applicants refer further to claim 3 of CA '844, which defines the "inverted V-shaped groove in the bottom peripheral edge" and then further states the plane of weakness is formed in the copper "deposited at this edge". The plane of weakness is not necessarily within the V-groove, but rather, may be at the peripheral edge of the cathode blank of CA '844. This applies to the narrow V-groove of CA '844, and not, Applicants submit, to the relatively wide groove of the present application.

B. Rule 132 Declaration

The previously-filed Rule 132 Inventor's Declaration by the Inventor, Wayne Armstrong, discusses the criticality of the angle ray of the V-groove. For example, as explained in paragraph 8 of the Declaration, the claimed 75-105 degree span was determined on the basis of "the need for the span of the V-groove to be large enough for copper to be deposited in the groove and thereby produce fracture or crack initiation within the groove (as opposed to on the outside of the groove), but not so large that it completely fills with deposited materials to such an extent that the material cannot be released cleanly".

As explained in paragraph 9 of the Rule 132 Inventor's Declaration, "the approximate 50 degree span of the prior art in CA 910,844, as shown in Figure 3 thereof, does not provide for clean release of the deposited metal from the cathode". Thus, we resubmit that in no way does CA 910,844 teach or suggest limiting the angle of the V-groove as presently claimed to be 75-105 degrees.

The Office action asserts the declaration is flawed since the applicants are using data that the drawing figure 3 has an angle of 50 degrees, which is an incorrect assumption based on a figure that is not set forth to have been drawn to scale.

If the Examiner intends to assert this then he is requested to rescind his assertion at page 3 that, "the figure no. 3 of the CA patent shows the v-groove used in the bottom of the plate and it appears to be in the range as set forth in applicant's instant claims."

Moreover, the Office action assertion that CA '844 fails to specify an angle to compare against is an indirect admission that CA '844 in fact discloses no selection in the range from 1 to 179 degrees. By corollary, this is an admission that CA '844 does not disclose the present selection of 75-105 degrees and it does not disclaim 50 degrees.

The showing of criticality to achieving unexpected results is appropriate. "Although evidence of unexpected results must compare the claimed invention with the closest prior art, applicant is not required to compare the claimed invention with subject matter that does not exist in the prior art." MPEO 716.02(f)(III)). Applicants do not have to create or assume a "prior art selection" where it plainly does not exist (on the basis of the Examiner's own indirect admission). Thus, Applicants assert that their selection of 75-105°, compared with the end points of 1 and 179° in CA '844 gives unexpected results by way of the features presently recited in claim 1, viz.

"...depositing said envelope on said cathode, said envelope including deposited metal on either side of said cathode joined along at least one edge by a frangible portion, and being removable from said cathode by rotation of respective sides of the deposited metal envelope about the frangible portion to separate the deposited metal from the cathode into two substantially symmetrical sheets, providing a groove on said cathode plate, wherein said metal is deposited on and adjacent to said groove to form said frangible portion, and wherein said groove is shaped for forming a line of weakness in the metal deposited within the groove and initiating separation of the two sheets of deposited metal along said line of weakness...".

In view of the Office action's assertion that CA '844 discloses no selection, in good faith, applicants have compared the present invention (75-105 degrees) against the angle shown in the drawing of CA '844 (*i.e.* 50 degrees). This would be closer than comparing to 1 or 179°. If the Examiner has a better basis for comparison, he is encouraged to share it with Applicants.

Thus, CA '844 does not teach or suggest limiting the angle of the V-groove as presently claimed.

C. Dependent Claims Further Distinguish Over CA '844

The obviousness rejection on the basis of CA '844 also extends to all pending dependent claims. Applicants respectfully traverse such a rejection on the following bases:

Claims 2 and 9 recite "...the line of weakness [is] formed within the arc of the V-groove". There is no teaching or suggestion of such a feature in CA '844. Since, as shown by Figure 3 in CA 910,844, the angle of the V-groove determines the location of the line of weakness, it cannot be said that such a feature is inherent, *i.e.* necessarily present, in CA '844. Thus, the Applicants respectfully submit claims 2 and 9 are inventive over CA '844.

Claims 4 and 11 recite "...the sides of the groove are 90 degrees apart". There is no teaching or suggestion of such a feature in CA 910,844. Since, as shown by Figure 3 in CA '844, the angle of the V-groove is approximately 50 degrees, it cannot be said that such a feature is inherent, *i.e.* necessarily present, in CA 910,844. Thus, the Applicants respectfully submit claims 4 and 11 are inventive over CA 910,844.

Claims 5 and 12 recite "...wherein the groove is shaped to allow deposition of metal directly adjacent the apex of the groove". Whilst CA '844 teaches that the deposition occurs "in directions normal to the sides of the V-groove" (at p.7, ll.4-15), it is not necessarily so, *i.e.* inherent, that the deposition occurs "directly adjacent to the apex of the groove". As shown by Figure 3 of the present application, depending upon the angle of the V-groove, such a feature may be impossible. Accordingly, the Applicants respectfully submit claims 5 and 12 are inventive over CA '844.

Claims 6 and 13 recite "...the groove is shaped to permit deposited metal to substantially fill the entire groove". There is no teaching or suggestion of such a feature in CA 910,844. As recited above, the angle of the V-groove shown by Figure 3 in CA '844 is approximately 50 degrees, such a feature may be impossible such that the relatively narrow groove does not permit electrodeposition of metal therein and that the frangible portion forms about the periphery. Accordingly, Applicants respectfully submit claims 6 and 13 are inventive over CA '844.

Claims 7 and 14 recite "...wherein the groove is shaped to capture gas rising from below the cathode plate during deposition of metal". Again, there is no teaching or suggestion of such a feature in CA '844. As shown in Figures 3-6 of the present application, the angle of the V-groove determines the location of the line of weakness. Thus, it cannot be said that such a feature is

inherent, *i.e.* necessarily present, in CA '844. Thus, the Applicants respectfully submit claims 7 and 14 are inventive over CA '844.

Claims 21 to 24 further distinguish over CA '844 by way of an inventive step. Specifically, claim 21 recites, *inter alia*, a step of "...trapping a gaseous material in the V-groove... to define [the location of the frangible portion]". By directing the location of the trapped gas, the location of the frangible portion where the deposited metal will fracture can be more accurately controlled. This permits more reliability in the symmetrical nature of the resulting sheets. As CA '844 neither teaches nor suggests such a step, Applicants respectfully submit claims 21 to 24 are also inventive over CA '844.

III. Conclusion

In view of the above, it is respectfully submitted the present claims are neither taught nor suggested by the cited references and the present invention is novel and inventive over the cited document. A Notice of Allowance is respectfully requested.

If any fee is necessary to make this paper, or any paper filed herewith, timely and/or complete, such fee may be deducted from deposit account number 19-4375.

Respectfully submitted,

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